



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,066	09/30/2003	James M. Cicchiello	NORTE-509A	5875

7663 7590 06/29/2006

STETINA BRUNDA GARRED & BRUCKER  
75 ENTERPRISE, SUITE 250  
ALISO VIEJO, CA 92656

EXAMINER
----------

CURS, NATHAN M

ART UNIT	PAPER NUMBER
----------	--------------

2613

DATE MAILED: 06/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/675,066

Applicant(s)

CICCHIELLO ET AL.

Examiner

Nathan Curs

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 9-13, 19 and 34 is/are rejected.
- 7) ☒ Claim(s) 4-8, 14-18, 20-33 and 35-39 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

1. Claims 17, 22, 31 and 33 are objected to because of the following informalities:

Regarding claim 17, the phrase "comprising curvature sensor" should be "comprising a curvature sensor".

Regarding claim 22, the phrase "said adaptive optical adapted" should be "said adaptive optical element adapted".

Regarding claim 31, the claim needs "wherein" or "further comprising" before the phrase starting "a common optical path".

Regarding claim 33, punctuation is missing.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 10, 13 and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 recites the limitation "the adaptive-optical element". There is insufficient antecedent basis for this limitation in the claim.

Claim 13 recites the limitation "both fields of regard". There is insufficient antecedent basis for this limitation in the claim.

Claim 34 recites the limitation "said beam splitter". There is insufficient antecedent basis for this limitation in the claim.

4. Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: structural relationships between the claimed elements that the optical head comprises.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Maerki et al. ("Maerki") (US Patent No. 6097522).

Regarding claim 1, Maerki discloses a method for facilitating airborne free space optical communications between an airborne host platform and a link platform, the method comprising: obtaining a priori of pointing information from a network to identify a location of the link platform (col. 5, lines 12-13); transmitting a beam directed to the link platform (col. 1, lines 6-11 and 32-37) and adjusting a coarse steering element to point the beam to the link platform within a first specified range of measured units (fig. 3, "coarse" section B and col. 1, lines 32-37 and col. 5, line 10-32); locating a beacon of the link platform (col. 7, lines 3-6); and dynamically focusing the beam to collapse the divergence of the transmitted beam down to a second specified range

Art Unit: 2613

of measured units less than the first to facilitate tracking (fig. 3, "fine" section D and col. 5, lines 33-44, col. 7, lines 8-10 and col. 10, lines 27-60).

Regarding claim 11, Maerki discloses the method according to claim 1, further comprising transitioning to a tracking mode wherein the link platform's transmission beam is used as a beacon (col. 7, lines 7-51).

Regarding claim 12, Maerki discloses the method according to claim 11, wherein during the tracking mode the beacon of the link platform remains within a field of regard of the coarse-steering element and fine-steering element by using a fine track sensor (col. 7, lines 7-51).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2, 3, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maerki (US Patent No. 6097522).

Regarding claims 2 and 3, Maerki discloses the method according to claim 1, and discloses first and second ranges (col. 10, lines 61-64), but does not explicitly disclose that the first specified range of measured units is about 200-500 microrad or that the second specified range of measured units is about 100 microrad. However, the applicant's disclosure in the specification of a first specified range of measured units of about 200-500 microrad and a second specified range of measured units of about 100 microrad is not a disclosure of criticality for the claimed ranges. Absent any disclosure of criticality, the microrad range limitations of a larger and small divergence would have been an obvious engineering design choice.

Art Unit: 2613

Regarding claims 9 and 10, Maerki discloses the method according to claim 1, and discloses that focusing includes defocusing the beam (col. 7, lines 7-51), but does not explicitly disclose that dynamically focusing includes defocusing the beam by utilizing a deformable mirror. However, the office take official notice that electro-mechanical deformable mirrors for focusing and defocusing are well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a deformable mirror for the focusing and defocusing in Maerki, to provide the benefit of electro-mechanical beam focusing/defocusing.

***Allowable Subject Matter***

9. Claims 4-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claim 13 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action, and further rewritten in independent form including all of the limitations of the base claim and any intervening claims

11. Claims 14-18 are objected to as being dependent upon a second rejected base claim that is dependent upon an initial rejected base claim, but would be allowable if the second rejected base claim was rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action, and if the claim was then rewritten in independent form including all of the limitations of the initial base claim and any intervening claims.

12. Claim 19 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

13. Claims 20-33 and 35-39 are objected to as being dependent upon a rejected base claim, but would be allowable if the rejected base claim was rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- US Patent No. 5710652 – This patent discloses a laser communication free space transceiver. Each transceiver comprises a wavelength locked beacon laser providing a beacon beam. Signals are directed with precision at other transceivers, and the signal beams are detected with very narrow field of view signal receive units.
- US Patent No. 6657783 – This patent discloses a free space optical communication system where a transmitted beam diverges by moving a transmit optical fiber to a point in front of a focal plane of a transmit telescope. The transmit optical fiber, in response to received power measurements at a receive telescope, incrementally moves back toward the focal plane of the transmit telescope thereby reducing the degree of divergence and achieving a greater signal per unit area at the receive telescope. As the divergence is reduced, the position of the transmit telescope and/or the receive telescope is incrementally adjusted to maximize the received

Art Unit: 2613

power of the received signal which is incident upon the receive optical fiber for each degree of divergence.

15. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (571) 272-3028. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (800) 786-9199.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pairedirect.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
JASON CHAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600